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PEOPLE'S REPUBLIC OF CHINA**

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Calcium nitrite for industrial use

工业亚硝酸钙

(English Translation)

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Foreword

This standard Chapter 7, Chapter 8 and Chapter 9 is mandatory, the rest are recommended.

This standard was drafted in accordance with rules GB/T 1.1-2009 given.

The standard proposed by China Petroleum and Chemical Industry Federation.

This standard by the National Standardization Technical Committee chemical inorganic chemicals branch (SAC/TC63/SC1).

This standard was drafted. CNOOC Tianjin Chemical Research & Design Institute, Chemical Co., Ltd. Shan Xi Kai Xi grams.

1 Scope

This standard specifies the technical requirements, test methods, inspection rules industrial calcium nitrite, marking, labeling, packaging, transportation, storage, and security.

This standard applies to industrial calcium nitrite as cement additives, rust inhibitors, antifreeze agents, detergents heavy oil, lubricating oil raw materials such as an emulsifier.

2 Normative references

The following documents for the application of this document is essential. For dated references, only applies to the version dated paper Pieces. For undated references, the latest edition (including any amendments) applies to this document.

GB 190-2009 dangerous goods packaging logo GB/T 191-2008 Packaging Pictorial signs GB/T 6678 General Principles for Sampling Chemical Products GB/T 6682-2008 specifications and test methods for water analysis laboratory GB/T 8170 rounding off means about rules and determining limiting values Preparation HG/T 3696.1 Inorganic chemicals for chemical analysis of standard titration solution Preparations with HG/T 3696.3 Inorganic chemicals Chemical Analysis Molecular formula and molecular weight 3 Molecular formula. $\text{Ca}(\text{NO}_2)_2$ Molecular weight. 132.09 (according to 2007 international relative atomic mass)

4 Requirements

4.1

Appearance. white powder.

4.2

Industrial calcium nitrite should meet the requirements of Table 1.

Table 1

project

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First grade Qualified Calcium nitrite [$\text{Ca}(\text{NO}_2)_2$] (dry basis) w /% ≥ 92.0 90.0 Calcium nitrate (dry basis) w /% ≤ 5.5 6.5 Moisture w /% ≤ 0.8 1.0 Water insoluble matter w /% ≤ 1.0 1.0

5.1 Safety Tips

Reagents used in this test method corrosive or toxic, the operator must be careful as water splashed on the skin immediately Flushing, severe cases should seek medical care immediately. When using flammable materials, it prohibited the use of open flame heating.

5.2 General Provisions

This standard reagents and water, in the absence of other requirements specified, refer to the specified three analytical reagents and GB/T 6682-2008 Grade water. Standard

Solution, test preparations and products desired, in the absence of other requirements specified, are by HG/T 3696.1, Preparation predetermined HG/T 3696.3 is.

5.3 Visual inspection

Under natural light conditions, it was visually determined.

5.4.1 Method summary

In acidic solution, using potassium permanganate oxidation of calcium nitrite. The consumption of permanganate was calculated standard titration solution of calcium nitrite content.

5.4.2 Reagents

5.4.2.1

sulfuric acid solution. 892.

The sulfuric acid solution was heated to about $70\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, was added dropwise a solution of potassium permanganate standard solution was titrated to a pale pink up. cool down, spare.

5.4.2.2

sulfuric acid. 15.

Preparation method with 5.4.2.1.

5.4.2.3 Standard potassium permanganate titration solution. c (15KMnO₄

) $\sim 0.1\text{mol/L}$.

5.4.2.4 Sodium oxalate standard titration solution. c (12Na₂C₂O₄

) $\sim 0.1\text{mol/L}$.

5.4.2.4.1 Preparation

Weigh about 6.7g sodium oxalate dissolved in 120mL of sulfuric acid solution (5.4.2.1) diluted with water to 1000mL, shake.

5.4.2.4.2 Calibration

Pipette with a pipette 25.0mL sodium oxalate standard titration solution, sulfuric acid solution was added 100mL (5.4.2.1), using a standard potassium permanganate Titration, was heated to near the end point $65\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, pale pink solution was titrated to continue holding 30s. At the same time as a blank test.

5.4.2.4.3 Computing

Standard solution concentration of sodium oxalate titration accurate value of c , units of moles per liter (mol/L), calculated according to formula (1).

$(V_1 - V_2) c_1$

Where.

Accurate value of C_1 --- potassium permanganate solution concentration standard titration, expressed in moles per liter (mol/L);

Potassium permanganate solution consumed by standard titration V_1 --- titration volume when the value in milliliters (mL);

Potassium permanganate solution consumed by standard titration volume when the blank titration value V_2 ---, milliliters (mL);

V --- Pipette Calibration of the sodium oxalate standard titration solution volume value in milliliters (mL).

5.4.3.1 Preparation of test solution

Weigh at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ dried to constant mass 2g of sample, accurate to 0.0002g, was placed in a 250mL beaker, add water-soluble solution. All into 500mL volumetric flask, dilute with water to the mark.

5.4.3.2 Determination

In 300mL Erlenmeyer flask, with a burette was added dropwise from about 38mL ~ 40mL potassium permanganate standard titration solution. With pipette 25mL of the test solution, sulfuric acid solution was added 10mL (5.4.2.2), heated to $40\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$. Sodium was added with a pipette 20mL grass Standard Solution, continue shaking the solution became clear, and then heated to $70\text{ }^{\circ}\text{C} \sim 80\text{ }^{\circ}\text{C}$, titration with potassium permanganate standard solution was titrated to dissolve Pale pink liquid and keep the 30s not disappeared.

5.4.4 Calculation results

Calcium nitrite, calcium nitrite content of $[\text{Ca}(\text{NO}_2)_2]$ w1 mass fraction basis, according to equation (2).

$[(V_1 c_1 - V_2 c_2)/1000] \times M \times (25/500) \times 100\%$ (2) where.

V_1 --- titration test solution was added potassium permanganate consumption of the total volume of the solution of the standard titration value in milliliters (mL);

Accurate value of C_1 --- potassium permanganate solution concentration standard titration, expressed in moles per liter (mol/L);